6.1 Sensory Perception

READING PREVIEW

Key Concepts

- Explaining the role of the five senses in tasting food
- Identifying the ways a food's flavor can change
- Describing the flavor of foods

Vocabulary

- aromatic
- flavor
- opaque
- savory
- taste
- translucent
- umami

> "Cuisine is only about making foods taste the way they are supposed to taste."
>
> – Charlie Trotter

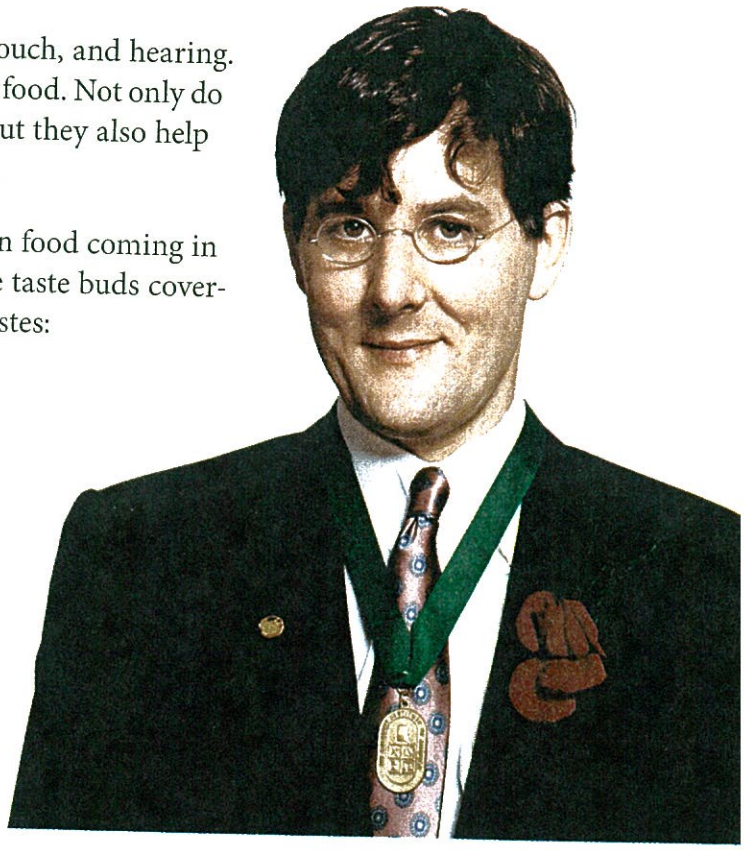
The Five Senses

Human beings have five senses: taste, sight, smell, touch, and hearing. Each of our senses plays a role in helping us taste our food. Not only do our senses help us identify the food we are eating, but they also help us decide if food is ripe or a dish is properly cooked.

The Sense of Taste Our sense of taste depends on food coming in contact with our tongue as we chew or swallow. The taste buds covering our tongue allow us to distinguish among five tastes:

- Sweet
- Sour
- Salty
- Bitter
- Umami

You may not be familiar with the taste of **umami** (OO-mam-ee). It is also referred to as the taste of **savory** (SAY-va-ree). This flavor, which is best thought of as meaty or brothy, was discovered in the early twentieth century by a Japanese professor. The most common example of umami is the food additive MSG (monosodium glutamate). Umami is often found in protein, some vegetables, and fermented foods, such as soy sauce.



Charlie Trotter
Charlie Trotter's, Chicago, IL

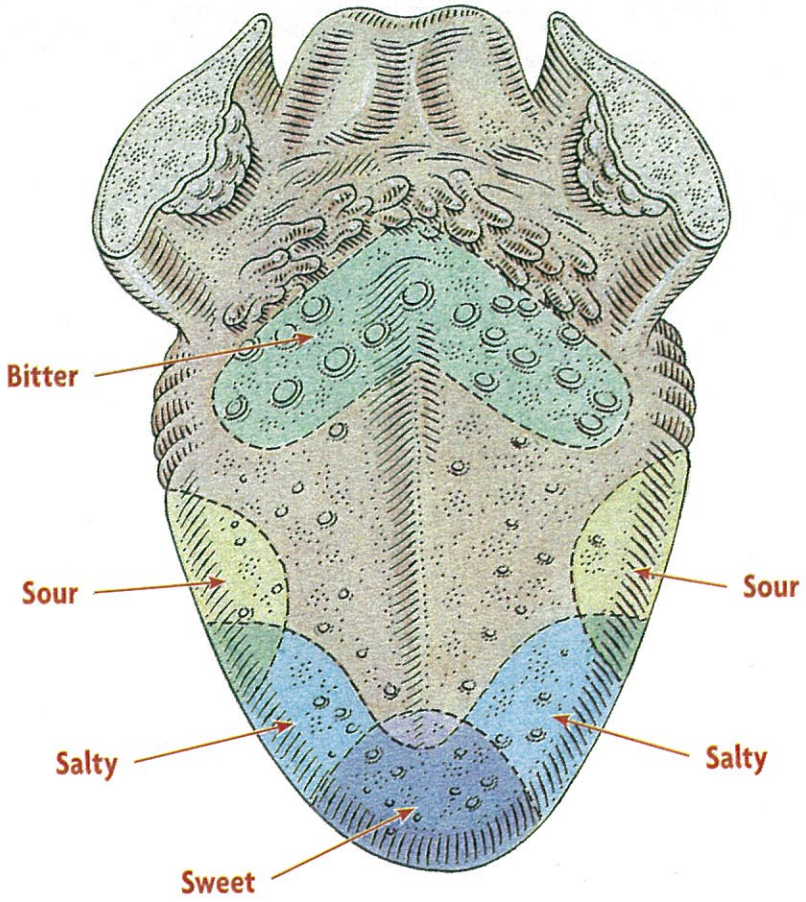


FIGURE 6-1
Sense of Taste
Specific areas of the tongue are most sensitive to sweet, sour, salty, and bitter tastes. Umami doesn't have a specific location on the tongue.
Applying Concepts *Which part of your tongue might be most affected when you taste a grapefruit?*

The Sense of Sight Typically, our first experience of food uses our sense of sight. We tend to prefer foods that look good. Foods that are ripe have the most appealing colors. Foods that are neatly cut and beautifully arranged are more appealing than foods that are not. That is why you hear chefs say "people eat with their eyes" and talk about "feeding the eye." If something doesn't look good, people may not want to try it.

The Sense of Smell When it comes to food, smell is an extremely powerful sense. We check foods for ripeness by smelling them. We monitor how quickly foods are cooking by the smell coming from the stove or the oven.

We can distinguish among thousands of different smells or aromas. Foods with especially strong smells are referred to as **aromatic** (air-o-MAT-ic). Have you noticed that if you have a cold and can't smell things, it is very hard to tell what you are eating? That's because what we think of as the taste of a food is often strongly influenced by our sense of smell. The aroma of a particular food is one of the ways we tell the difference between foods that are similar in appearance and taste. For example, an orange and a tangerine are very similar in appearance but different in smell.

FOCUS ON NUTRITION

Eat a Rainbow

Often, the more vibrant the color of fruits and vegetables, the more nutrition they deliver. Eating a variety of colorful fruits and vegetables is the best way to be sure you get the right vitamins and other nutrients in your diet. Some nutritionists recommend eating a "rainbow" of foods.

The Sense of Touch Touch is the way we experience a food's texture and its temperature. We use our sense of touch, along with sight and smell, to help identify when foods are fully ripe or properly cooked. Some foods soften as they ripen or cook, while others become more firm.

The texture of food plays an important role in determining how food tastes to us. Very thick or chewy foods stay in our mouths longer than foods that are thin and swallowed quickly. That means we have more time to taste and smell the thicker food. Fatty, oily, or rich foods also coat our mouths. These foods seem to have a fuller flavor than very lean or watery foods.

Our sense of touch is also the way we experience such sensations as the burn of hot peppers, the cooling effect of mint, the drying or puckering effect tea has on the inside of our mouth, the numbing sensation of cloves, and the fizz of carbonated beverages—to name only a few of the ways food feels when we eat it.

Figure 6-2
Food Texture
Think of the combination of textures in this fried chicken.
Applying Concepts *What can a crisp, crunchy crust on chicken tell you about its flavor?*

The Sense of Hearing Hearing is also an important aspect of our food experience. For example, crisp foods make a loud crunch as we cut or bite them. When a food sizzles on a platter, we expect it to be very hot.

Chefs use their sense of hearing to help them keep track of how quickly foods are cooking. They can distinguish the sounds of a fast boil or a lazy simmer. They can also tell when the sounds of food cooking in the oven means the oven is too hot or too cool.

Reading Checkpoint *What are the five senses?*

Changing a Food's Flavor

Taste is a word we can use in more than one way. As we just learned, taste refers to the sensation we experience through our taste buds when we put a food in our mouth. Taste is also the word we use when we mean the taste of the food in addition to its smell. **Flavor** refers to the way a food tastes, as well as its texture, appearance, doneness, and temperature. In practical terms, taste and flavor are used almost interchangeably.

Ripening or Aging The flavor of any food changes as it ripens or ages. Food that is not fully ripe may have a bitter or bland taste because it has not developed completely. When it is ripe, it will have the richest flavor. As food ages, the flavor continues to change until it reaches a point where we consider the food spoiled or rotten. The natural aging and ripening process of any food changes the way it tastes to us. For example, a green tomato has a tart taste, a ripe tomato tastes sweet, and an overripe tomato tastes fermented.

Temperature The temperature of a food also plays a part in how it tastes to us. Very cold food seems less flavorful than warm or hot food. As foods get warmer, it is easier for us to taste and smell. A tomato that you take right out of the refrigerator doesn't have as intense a flavor as one that has been sitting on the counter at room temperature.

Preparation and Cooking When we prepare or cook food, we change it from its original state. The change may be quite simple. For instance, a ripe tomato may simply be sliced. Cutting the tomato changes the way it tastes, even though it is not a big change.

If we take the same tomato and cook it in a pan until it turns a deep brown, we've made a more significant change to the way the tomato tastes. If we chop the tomato and cook it until it is soft but not brown, it has an entirely different taste.

As you learn more about the different ways you can cook food, you will find that each cooking technique produces its own characteristic taste. Cooking is one of the most significant ways we can change the taste of food. We can improve the flavor of food when we cook it, but we can also ruin its flavor.

Reading Checkpoint *What are three ways you can change the flavor of food?*

Describing Flavor

When we describe how a food tastes, we are usually talking in broader terms than just which tastes and aromas a food has. Typically, we are also considering the way the food appeals to all of our senses. When we talk about a food or a dish in this way, we are talking about its flavor.

The Way Flavor Looks When you look at food, you can make some predictions about its flavor. Food that looks fresh and unblemished or has good color usually has the best flavor. We look for a good shape, one that is appropriate for the food. Additionally, the look of food is

Figure 6-3
Cooking Onions
Onions change from opaque to translucent to brown as they cook.
Comparing *Do you have a sense of how these onions will taste at each of these stages of cooking?*

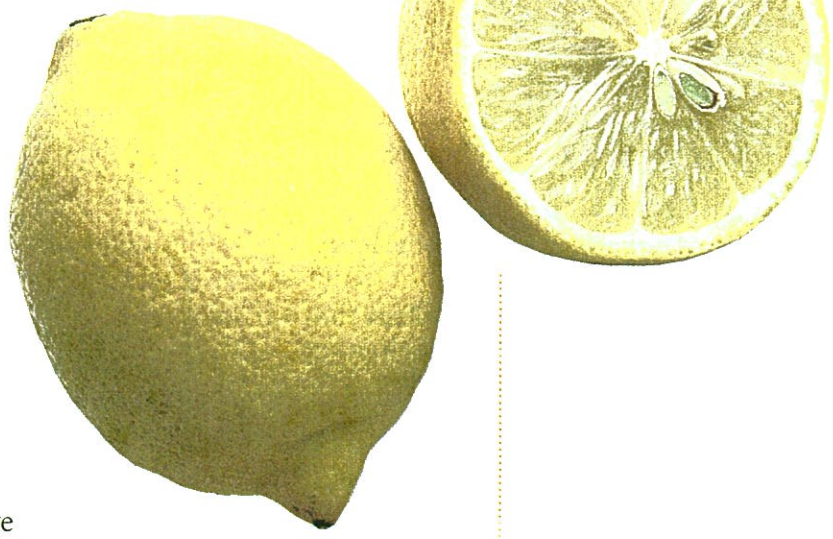
usually changed during cooking. Here are some descriptive words we might use to describe the way food looks:

- **Opaque** (o-PAKE), meaning light does not pass through it
- **Translucent** (trans-LU-cent) meaning some light will pass through it
- Transparent or clear
- Colors, such as red, yellow, green, brown, white, ivory, or orange

The Way Flavor Smells There are hundreds, perhaps thousands, of words you might use to describe the way food smells. The way food smells before you eat it is sometimes quite different from the way it smells once you put it in your mouth.

One of the most obvious ways to describe a smell is to describe a similar smell. For example, you might say a food item smells like a lemon, like vanilla, like toast, or like mushrooms. Some other descriptive words relating to the way food smells are:

- Perfumed
- Pungent
- Earthy
- Stale
- Musty
- Fresh
- Strong
- Intense



The Way Flavor Feels Texture is the way food feels when we touch it, cut it, or bite into it.

Some descriptive words for a food's texture are:

- Firm, hard
- Soft, yielding, melting
- Crisp, crunchy, crumbly
- Airy, frothy, foamy
- Thick, heavy, dense
- Watery, thin
- Warm, hot
- Cool, cold

The Way Flavor Sounds

The sounds food makes gives you a clue about its flavor, too. Here are some descriptive words for the way a food sounds:

- Snap
- Sizzle
- Pop
- Crackle
- Crunch
- Fizz

Reading Checkpoint *List several words you can use to describe how a food looks, smells, feels, and sounds.*

6.1 ASSESSMENT

Reviewing Concepts

1. What are the five tastes our taste buds allow us to distinguish?
2. What are three ways the flavor of food can be changed?
3. List several words you could use to describe "flavor" as it applies to each of the five senses.

Critical Thinking

4. **Classifying** Think about your favorite food. Which tastes are included in it?
5. **Comparing/Contrasting** Name a food that is more attractive to you hot and less attractive cold. Name one that is more attractive cold than hot.
6. **Classifying** Which of the senses, other than taste and smell, is most important to you in considering flavor. Explain your answer.

Test Kitchen

Cut an apple, an onion, and a radish each into a small dice. Divide into groups of two. While one person is blindfolded and holding his or her nose, the other person should feed the blindfolded person a small amount of each of the foods, asking the blindfolded person to identify the food. Reverse roles. Record the results.

SCIENCE

Umami

Research the discovery of the taste of umami. Who discovered the taste? When was the discovery made? What does the name mean in Japanese? What foods are considered to have a strong umami taste?